

TOPIC D

Assign Resources to Tasks

With resources entered and resource calendars decided, you are ready for the next step in the creation of your project plan, which is to connect the resources with the appropriate tasks. In this topic, you will assign resources to the tasks in your project plan.

The Scheduling Formula

The assignment of resources to tasks is governed by the following formula:

$$\text{Work} = \text{Duration} * \text{Units}$$

Figure 5-10: The scheduling formula.

Work is the number of person-hours required to complete each resource's assignment, **duration** is the time interval (in hours) between the start and finish times of a task, and **units** is the representation of the percentage of a resource's time (as a decimal) assigned to a task.



Note: In this case, units is another term for the number of resources: for example, 0.5 represents half-time for one resource; 1.0 represents full-time for one resource; and 2.0 represents full-time for two resources.

For example, one person assigned full-time to a one-day task results in 8 person-hours of work.



Note: Project uses "hours" instead of "person-hours" for work, and that convention will be adopted in this course.

Task Types

You can control the way your task schedule is managed by setting any one of the three variables—duration, work, or units—to unchangeable in scheduling calculations. It is critical to understand that after work has been assigned to a task, changing the assignment will result in a change in either the work or the duration. If the amount of work is fixed for a task (for example, painting a room), doubling the number of resources will halve the duration. On the other hand, if the duration for a task is fixed (for example, holding a meeting), doubling the number of resources will double the amount of work.

You set which variable is fixed from the **Task type** drop-down list on the **Advanced** tab of the **Task Information** dialog box.

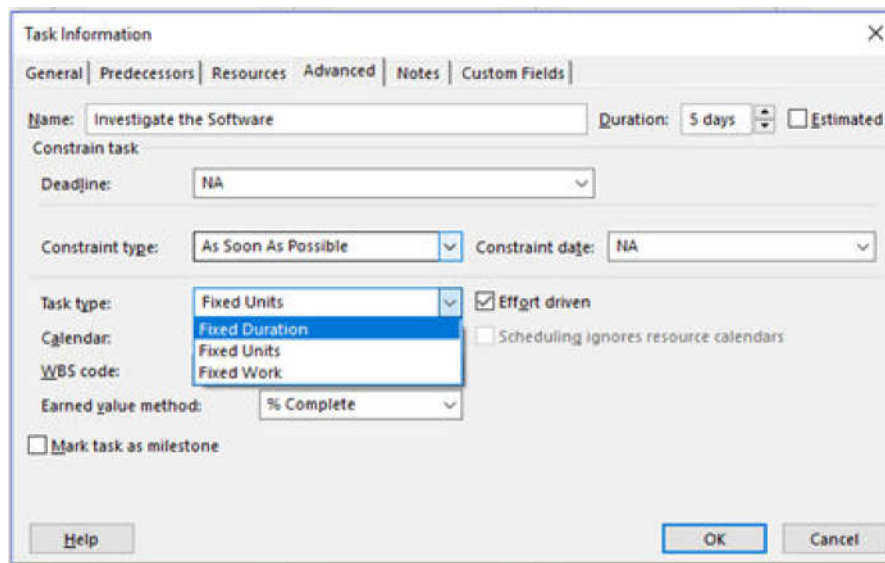


Figure 5–11: You set one variable of the scheduling formula as fixed from the Task type drop-down list.

The table presents the details of each task type.

Task Type	Description
Fixed Units	This is the default task type in Project. Assigning additional resources to a task reduces the task's duration. For example, if one resource is assigned to complete the task of stuffing envelopes, adding another resource will shorten this task's duration. When effort-driven scheduling is turned on, then adding resources shortens the duration for that task. However, if effort-driven scheduling is turned off, then adding resources increases the total amount of work, but the units and the duration remain the same.
Fixed Duration	Any change made to the work, or to the assigned resources, does not impact the task's duration. Assigning additional resources to this task type decreases the individual unit values for resources. For example, if a delivery is made from one site to another and only one truck is necessary to complete the task, assigning additional resources to the task does not decrease the task's duration. When effort-driven scheduling is turned on, adding resources decreases the units for each resource. When effort-driven scheduling is turned off, then adding resources increases the total work and keeps the units and duration the same.
Fixed Work	If changes are made to the task's duration, or to the number of assigned resources, there is no impact on work. Assigning additional resources shortens the duration of the task for this task type. When you set the task type as Fixed Work , effort-driven scheduling is automatically turned on and you do not have the option to turn it off.

Effort–Driven Scheduling

Effort-driven scheduling is a method used to determine what happens to the duration or resource units for a task when you add or remove resources. When you assign resources to an effort-driven task, Project shortens the task duration, and when you remove resources from it, Project lengthens the task duration. It does not, however, change the total work for the task. Effort-driven scheduling is off by default in Project.



Note: Effort is synonymous with work in Microsoft Project. By common convention, we use the term **fixed work** before assignments are made to a task, and **effort-driven scheduling** after assignments are made.

The Task Usage Table

The **Task Usage table** displays a list of tasks showing assigned resources under each task. Each of the rows under a task represents the link between a particular task and a single resource. The details for the assignments, such as planned work, are displayed in the columns.

	Task Mode	Task Name	Work	Duration	Details	M	T	W	T	F
6		Interview Department Heads	32 hrs	1 day	Work	32h				
		HR Manager	8 hrs		Work	8h				
		Finance Manager	8 hrs		Work	8h				
		IT Manager	8 hrs		Work	8h				
		Customer Service Manager	8 hrs		Work	8h				
7		Outline Phase	64 hrs	7 days	Work		16h	16h	16h	
8		Create Outline	48 hrs	3 days	Work		16h	16h	16h	
		Writer 1	24 hrs		Work		8h	8h	8h	
		Writer 2	24 hrs		Work		8h	8h	8h	

Figure 5-12: View the details of the resources assigned to each task in the Task Usage table.

The Resource Usage Table

The **Resource Usage table** is similar to the **Task Usage** table, but it revolves around resources instead of tasks. It displays a list of resources showing tasks under each resource. Each of the rows under a resource represents the link between a particular resource and a single task. The details for the assignments, such as planned work, are displayed in the columns.

	Resource Name	Work	Details	August			September		
				B	M	E	B	M	E
5	Attorney 1	32 hrs	Work	16h	8h			8h	
	Review Government Regulations	16 hrs	Work	16h					
	Review with Legal Department	8 hrs	Work		8h				
	Review with Legal Department	8 hrs	Work					8h	
6	Attorney 2	32 hrs	Work	16h	8h			8h	
	Review Government Regulations	16 hrs	Work	16h					
	Review with Legal Department	8 hrs	Work		8h				
	Review with Legal Department	8 hrs	Work					8h	

Figure 5-13: View the details of the tasks assigned to each resource in the Resource Usage table.

The Assign Resources Dialog Box

From the **Gantt Chart** chart view, you can use the **Assign Resources dialog box** to assign resources to tasks. While the **Assign Resources** dialog box is open, you can still select tasks in the **Task Entry** table to quickly change which tasks are being assigned. You can use this dialog box to assign a single resource to more than one task. For example, consider the tasks “Review Existing HR Manual” and “Review Common Industry Practices.” It makes sense that the Project Manager would be assigned to both of these tasks. You can also assign multiple resources to a single task.

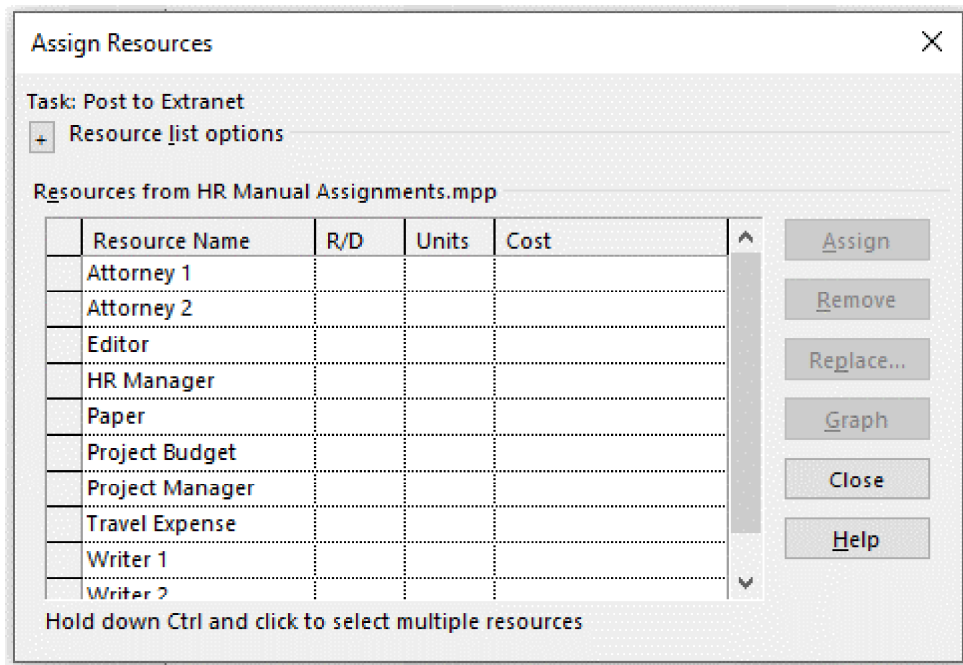


Figure 5-14: You can manage the assignment between resources and tasks in the Assign Resources dialog box.

	<p>Access the Checklist tile on your CHOICE Course screen for reference information and job aids on How to Assign Resources to Tasks.</p>
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ACTIVITY 5-4

Assigning Resources to Tasks

Data File

C:\091098Data\Managing Project Resources\HR Manual Assignments.mpp

Before You Begin

Microsoft Project is open, and other resources have been added to the project plan file.

Scenario

Your project plan is taking shape very nicely, and now you need to assign resources to tasks. After you make some assignments, you notice that you forgot to add a resource to one of the assignments. You then make this change.

The PMO has given you a budget of \$50,000, and you need to assign it to the project summary task so you can track actual expenditures against the budget during project execution.

1. Open the HR Manual Assignments.mpp project plan file.

- On the **Open** tab in **Backstage View**, select **Browse**.
- In the **Open** dialog box, navigate to the **C:\091098Data\Managing Project Resources** folder containing your class files.
- Select **HR Manual Assignments.mpp** and select **Open**.
Nobody is working on the tasks, because there are no names next to the Gantt bars.

2. Insert the Work column into the Task Entry table.

- Right-click the field heading for the **Duration** column and select **Insert Column**.
- Type **W** to move down in the alphabet.



Task Mode	Task Name	Duration	Start
0	HR Manual Assignments		
1	1 Begin Project		
2	2 Research Phase		
3	2.1 Review Existing HR Manual		
4	2.2 Review Common Industry Practices	1 day	Tue 8/4/20
5	2.3 Review Government Regulations	2 days	Tue 8/4/20

- Select **Work**.
- Place the cursor over the divider bar at the right edge of the **Task Entry** table, and drag right until the **Finish** field can be seen.

3. Assign resources using the Task Entry table.

- Double-click **2.1 Review Existing HR Manual** to open its **Task Information** dialog box.
- In the **Task Information** dialog box, select the **Resources** tab.
- In the **Resource Name** field, select **HR Manager**.




Note: The **Assignment Owner** column is only used with Project Server, but it is unavailable in Project Professional even though it is not shaded gray.

- d) Select **OK**.
Verify that the **Work** column has a value of **8 hrs**, and that the name **HR Manager** appears next to the Gantt bar for the task.

2 Research Phase	8 hrs	4 days	Mon 8/3/20	Thu 8/6/20	
2.1 Review Existing HR Manual	8 hrs	1 day	Mon 8/3/20	Mon 8/3/20	HR Manager
2.2 Review Common Industry Practices	0 hrs	1 day	Tue 8/4/20	Tue 8/4/20	

- e) Using the same method, make the following assignments:
- **2.2 Review Common Industry Practices: HR Manager, Project Manager**
 - **2.3 Review Government Regulations: Attorney 1, Attorney 2**
 - **2.4 Interview Department Heads: Customer Service Manager, Finance Manager, IT Manager**
 - **6.3 Review with Senior Management: Travel Expenses; enter 1000 in the Cost field**
 - **7.3 Print Proof: Printer Operator, Paper**



Note: Note that 1 ream is the default **Units** for paper. This is because the **Material Label** for paper is **reams**.

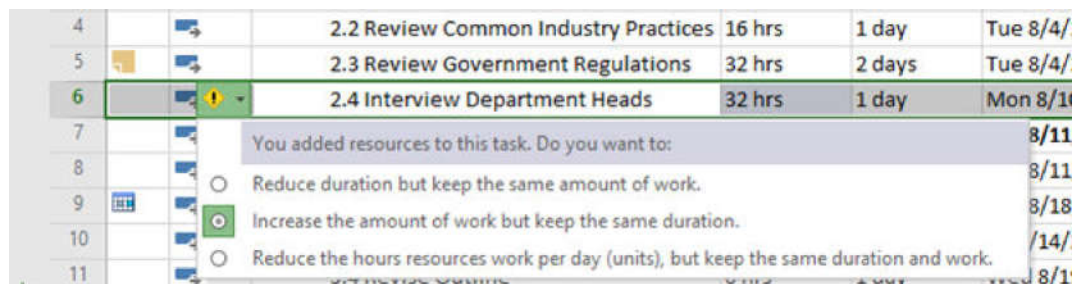
- **7.5 Print Final: Printer Operator, Paper**

4. Assign resources using the Assign Resources dialog box.

- On the ribbon, select **Resource→Assign Resources**.
- With the **Assign Resources** dialog box open, in the **Task Entry** table, select **3.2 Review with Legal Department**, press and hold **Ctrl**, and select **6.1 Review with Legal Department**.
- In the **Assign Resources** dialog box, select **Attorney 1**, press and hold **Ctrl**, and select **Attorney 2**.
- Select **Assign**.
- In the **Task Entry** table, select **3.1 Create Outline**.
- In the **Assign Resources** dialog box, select **Writer 1**, press and hold **Ctrl**, and select **Writer 2**.
- Select **Assign**.
- Select **Close** to close the **Assign Resources** dialog box.
Verify that assignments have been made to Tasks 3.1, 3.2, and 6.1.

5. Add a resource to a task, increasing the work and leaving the duration unchanged.

- Double-click **2.4 Interview Department Heads** to open the **Task Information** dialog box.
- In the first blank row of the **Resource Name** field, select **HR Manager**.
- Select **OK**.
Verify that **Work** has changed to **32 hrs** and **Duration** is unchanged at **1 day**.
- Place the cursor over the **Task Name** for **2.4 Interview Department Heads** and select the arrow next to the diamond and exclamation mark next to the task name.



- Increase the amount of work but keep the same duration** is selected by default; select the **radio button** anyway to close the window.

6. Assign the project budget to the project plan.

- a) Double-click the **HR Manual Assignments** project summary task to open the **Task Information** dialog box.
- b) In the **Resource Name** field, select **Project Budget**.
- c) Select **OK**.
- d) Select **View→Task Usage**.
- e) Right-click the **Work** field and select **Insert→Column**.
- f) Scroll down the list and select **Budget Cost**.
- g) In the **Budget Cost** field for the **Project Budget** resource, enter **50000**
- h) Widen the **Task Name** and **Budget Cost** fields.

Task Name	Budget Cost
▀ HR Manual Assignments	\$50,000.00
<i>Project Budget</i>	<i>\$50,000.00</i>

7. View the **Cost** and **Budget Cost** fields in the **Task Entry** table.

- a) Select **View→Gantt Chart**.
- b) Right-click the **Work** column, select **Insert Column**, and type **C**
- c) Select **Cost**.
- d) Right-click the **Cost** column, select **Insert Column**, and type **BU**
- e) Select **Budget Cost**.

8. Save your changes as **My HR Manual Assignments.mpp** and close the file.

- a) On the ribbon, select **File→Save As**.
- b) Select **Browse** and then navigate to **C:\091098Data\Managing Project Resources**.
- c) In the **File name** field, enter **My HR Manual Assignments.mpp** and then select **Save**.
- d) Select **File→Close**.